



# Florida Caribbean Science Center

***F**lorida Caribbean Science Center biologists conduct research and generate information responsive to the highest priority conservation needs in the Southeastern States and Caribbean Basin.*



Alligator eggs hatching

Established in **Gainesville, Florida** in 1985, the original mission of the USGS Florida Caribbean Science Center was to study the impacts of nonindigenous species in the United States, restore imperiled freshwater and estuarine species, and restore populations of anadromous fishes. The Center has since evolved into a **multi-disciplinary** research center, devoted to answering the regional **ecological questions** raised by both manmade and natural environmental changes in the southeastern United States and Caribbean Basin.

Investigators **determine the impacts** of environmental toxins



Red salamander, Smoky Mountains

on wildlife, **document the status** of amphibian, reptile and invertebrate species of special concern, and **create profiles** of biological communities in the Everglades Ecosystem.

Research efforts at the Center are focused on four major areas:

- **Coastal and Marine Ecology**
- **Invasive Species**
- **Restoration Ecology**
- **Biological Diversity**

Working in collaboration with Federal, State and other partners, Center researchers provide biological and ecological information for **sound resource management**.

Center scientists and support staff use their combined experience in wetland, wildlife, riverine, and marine ecology to undertake **extensive multi-disciplinary regional research** projects. These efforts include providing support to the South Florida Ecosystem Restoration initiative; **broad-scale** coral reef, river system, coastal, and estuarine studies; and assessment of nonindigenous and invasive aquatic organisms and their effects on native species and biological communities.

Field stations are located in Miami, Big Cypress National Preserve, Everglades National Park, and the U.S. Virgin Islands.



Little Africa Reef in the Gulf of Mexico



Asian swamp eel

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## Scientific Capabilities

The Florida Caribbean Science Center uses interdisciplinary teams with expertise in: biometry; ecology and restoration of wetlands; status and ecology of freshwater mussels and fishes; geographic information systems; ecology and restoration of aquatic/marine transition zones; and remote sensing to address the complex biological and environmental issues facing the Southeastern and Caribbean regions. Working with Federal, state, and local partners, FCSC provides high-quality, objective biological information to help resource managers address important issues in conservation of the Nation's biological resources.

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### Coastal and Marine Ecology

Providing information needed for the conservation and management of estuaries, coastal bays, coral reefs and associated systems.

- Supporting recovery of the Florida manatee by providing information on populations, trends, and limiting factors to management agencies.
- Determining populations and habitat requirements of anadromous fishes, including the Gulf sturgeon in coastal rivers.
- Understanding the factors that affect sensitive coastal communities, including seagrass beds and coral reefs.
- Developing complex information systems needed by the Department of the Interior and others to protect coral reefs and associated systems.

### Invasive Species

Developing and interpreting information on the distribution, biology, and environmental effects of nonnative aquatic species introduced into the environment.

- Archiving, managing, and developing innovative systems for release to the public of information on the distribution

and spread of exotic species introduced into U.S. waters.

- Determining the distribution, status, and ecological relationships of nonindigenous fishes and their interactions with communities of native species.
- Evaluating the role of nonindigenous species in natural and degraded South Florida ecosystems and developing recommendations for restoration.

### Restoration Ecology

Developing basic information on biological communities of the Florida Everglades ecosystem and the physical, chemical, and landscape factors that affect them.

- Ecological modeling of wetland systems, with emphasis on predictions critically needed to guide restoration of South Florida ecosystems.
- Examining the role of disturbances from fires, floods, and hurricanes in maintaining the diversity of South Florida ecosystems.
- Understanding the driving forces that control the distribution, abundance, and

sustainability of biological resources of Florida Bay and the Florida Keys.

### Biological Diversity

Designing and validating survey, inventory, and monitoring technologies to document and track the status of populations of fishes, amphibians, and reptiles of special concern.

- Assessing toxic effects of environmental contaminants and excessive sedimentation on freshwater mussels, alligators, turtles, and other aquatic organisms.
- Developing basic and applied information on the role and effects of hormone disruptors in the environment.
- Identifying the role of human activities in causing species decline and extinction.
- Devising new statistical methodologies to evaluate changes in natural populations of fish and wildlife, and predict the effects of stress on them.